

Class III.]

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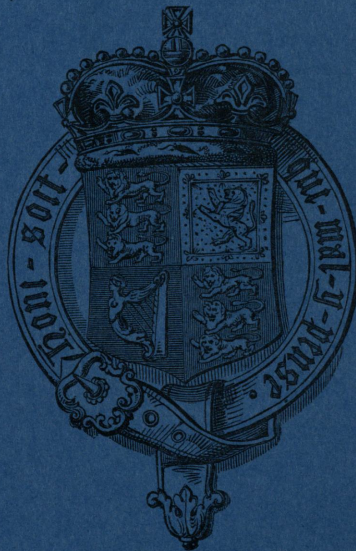
OFFICIAL



Descriptive and Illustrated

CATALOGUE.

By Authority
of the



Royal
Commissioners.

CLASS III.

SUBSTANCES USED AS FOOD.

LONDON:

SPICER BROTHERS, WHOLESALE STATIONERS; W. CLOWES & SONS, PRINTERS;
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1851.

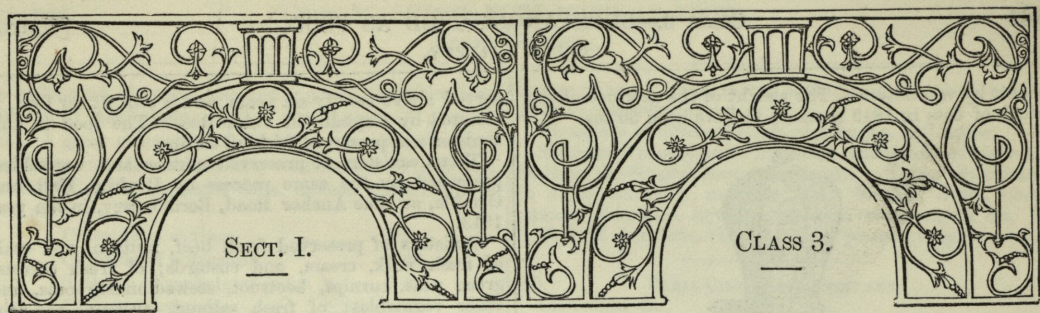


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SUBSTANCES USED AS FOOD.

INTRODUCTION.

MOST of the objects exhibited in this Class are so familiar as to require little preliminary notice. Substances used as food are derived either from the animal or from the vegetable kingdom, and may, consequently, be arranged under these two divisions—Animal and Vegetable. The latter are necessarily the most varied and the most important. Vegetable substances used as food may be arranged under the following heads:—
 A. Agricultural produce, such as cereals, pulses, oils, seeds, &c.; B. Dried fruits and seeds; C. Substances used in the preparation of drinks; D. Intoxicating drugs, fermented liquors, &c.; E. Spices and condiments; F. Substances belonging to the starch; and G. Substances belonging to the sugar series. Preserved meats, soups, honey, gelatine, &c., belong to the subdivision of animal substances.

CLASS 3 is situated in SOUTH GALLERY P, and is entered immediately after studying the preceding Class, situated in the same gallery. Like the last, the amount of space occupied by it is very moderate, but the substances it comprises are interesting, and deserve attention, not, as in the last case, from their connexion with commercial enterprise and prosperity, but from their relation to the support and healthy condition of the artificer himself.

The Class comprises a variety of agricultural produce—wheats of various kinds and of differing degrees of productiveness, together with specimens illustrative of the remarkable effect of hybridization, or the crossing of one variety of wheat with the pollen of another. Wheat is also shown in its various states of preparation for the purposes of food, or for the preparation of fermented liquors. Extensive collections of seeds of grasses, fodder-plants, and others for cattle food, are also exhibited, together with an arranged series of the vegetable productions of Scotland, including plants cultivated for their farinaceous seeds; plants cultivated for their herbage or forage, for their roots, for their uses in the arts, manufactures, &c., for their medicinal properties, and for their timber. Preserved fruits and seeds of various countries are also contained within this Class, representing those articles of luxury removed by their character and costliness out of the ordinary category of human food. Specimens of hops of different varieties, adapted for different purposes, are also shown, and represent a department of agriculture more important in this country than in any other in the world. It has been estimated that upwards of 52,000 acres of land are devoted in England to the cultivation of this plant, about the half of which is in the county of Kent. The duty on hops amounts to about a quarter of a million sterling annually.

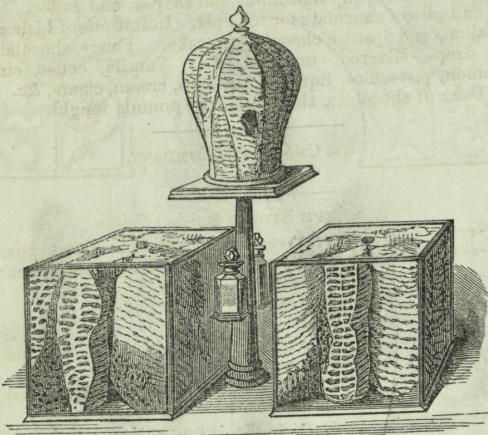
A variety of substances used in the preparation of drinks are comprised in this Class. Specimens of different kinds of cocoas, in the natural and manufactured state, of coffee, and of tea, represent the ingredients contributing to form the liquid diet of millions of the human race, and each containing, according to recent discoveries, a peculiar nitrogenous principle, identically similar in each, though recognised under different names. New substances are also shown, intended to form substitutes for these articles. Starches, spices, and condiments represent the remaining division of vegetable substances.

The division—animal substances—includes a variety of articles of preserved food; among these are cases containing food preserved in air-exhausted canisters for lengthened periods. Isinglass, gelatine, honey, preserved soups and meats, belong also to this division. There are also some preparations from blood, and combinations of vegetable and animal substances for the purposes of food, together with milk reduced by evaporation to a dried state.—R. E.

- 1 LIGHTON, JAMES, *Frampton, near Boston*—
 Producer.
 Glass of honey, 19 lbs., produced under an improved system of bee management.
 The honey is worked in the glass by the bees, and the glass requires no protection except a small piece of black calico, 18 inches square, to stand upon.
- 2 DOUBLEDAY, H., *Coggeshall, Essex*—Producer.
 Fine specimen of honeycomb.
 [3.]

- 3 CARLETON, EDWARD, *Blaris, Lisburn, Ireland*.
 Camomile flowers.
- 4 BENTLEY, JOHN FLOWERS, *Stamford, Lincoln*—
 Producer.
 Specimens of honey in the comb, free from pollen and brood cells, collected under Nutts' system of manage-

ment, by ventilation. The weight of the produce of one stock of bees in 1849 is stated to have been 50 lbs.



5 KITCHENER, WM. CRIPPS, *Newmarket, Cambridgeshire*
—Producer and Inventor.

Two specimens of honey taken in 1850, from the same hive, and at the same time.

Ventilated communicator, for obtaining honey free from impurity or discoloration.

6 DUTTON, ROBERT WILLIAM, 146 *Fleet Street*—
Proprietor.

A glass containing a honeycomb.

6A HAMILTON, GEORGE AND PETER, *Oldham*—
Manufacturers.

Specimens showing the different stages in the manufacture of flour from the wheat to the biscuit.

7 HILLS & UNDERWOOD, *Eastcheap*—Inventors
and Manufacturers.

Samples of malt vinegar when first acetified, and when clarified; samples of brown malt vinegar, distilled vinegar, and distilled vinegar with vegetables.

8 BIVEN, & Co., *St. John's Lane, Gloucester*—
Manufacturers.

Six bottles of champagne wine, manufactured in England from rhubarb stalk.

10 ROBERTS, WILLIAM HENRY, *British Wine Works, Laverock Bank, Edinburgh*—Maker.

Samples of "champagne sparkling hock," made in 1847 from Valentia raisins, grapes, sugar, sugar-candy, and honey, the extract being duly fermented.

"Madeira," made in 1836, from malt and sugar extract.
"Constantia Frontignac," made from Valentia raisins, sugar, and sugar-candy. The "Frontignac" is flavoured by an infusion of elder flowers distilled.

"Keeping beer," brewed in February, 1845, and October, 1847.

12 GAMBLE, JOHN HENRY, 33 *Royal Exchange*—
Manufacturer.

Canister, containing boiled mutton, found by Captain Sir John Ross, on Fury Beach, in latitude 72 deg. 47 min., and longitude 91 deg. 50 min. This is one of the canisters of preserved food, prepared by the exhibitor for the Arctic Expedition in 1824. It was landed from H.M.S. "Fury," on the beach where the ship was wrecked in Prince Regent's Inlet, and found by Captain Sir John Ross, in August, 1833, still in a perfect state of preservation, although annually exposed to a temperature of 92 deg. below, and 80 deg. above, zero. In 1849, when Captain Sir James Ross visited Prince Regent's Inlet in H.M.S. "Investigator," he found the provisions still in excellent condition. That the canister exhibited has been pre-

served above twenty-six years, and is still fit for food, is attested by Captain Sir John Ross. The food in this canister was preserved without salting.

Three canisters of preserved mutton and vegetables, preserved by the same process by Donkin, Hall, and Gamble, at Blue Anchor Road, Bermondsey, in the year 1813.

Canisters of preserved fresh beef, mutton, and veal; of fresh milk, cream, and custards; of fresh carrots, and green peas, turnips, beetroot, stewed mushrooms, and other vegetables; of fresh salmon, oysters, cod-fish, haddock, and other fish; and of real turtle soup, mock-turtle soup, ox-tail and other soups.

Preserved hams for use in India, China, &c.
Callipash, callipee, and green fat for making real turtle soup, all preserved by the same process. Also soup and bouilli, for emigrants and troops at sea.

Pheasants, partridges, &c., preserved. The whole preserved so as to keep in any climate, and for an unlimited length of time.

[This method is the invention of M. Appert, in France, and was first practised in England by Messrs. Donkin, Hall, and Gamble. The process consists in placing the partially-cooked provisions into tin canisters, with a little bouillon or juice of the meat, then soldering on the covers, which have a small hole perforated therein. The tins are, after this, immersed, to a great portion of their depth, in a saline-bath heated above the boiling point of water, and left therein until the air has been expelled as completely as possible by the steam generated within them; the hole in the cover is now hermetically closed with a little solder, the tin being momentarily touched with a damp sponge to stop the egress of steam. The minute portion of oxygen still remaining in the tins enters into combination with the animal or vegetable matter at the induced temperature, and thus, further change is prevented. After the sealing of the tins, they are submitted to the ordeal of the testing-room, heated to a temperature above 100° Fahr.; if putrefaction takes place, the generated gases burst the tins, but those which pass uninjured remain perfectly good.—W. D. L. R.]

14 SMITH, MICHAEL, *Copper Alley, Dublin*.

Preserved pig; large and small hams, cured upon the "mild-cure" principle.

15 RITCHIE & MCCALL, 137 *Houndsditch*.

Specimens of preserved meats, poultry, fish, &c., the produce of the United Kingdom; and of beef, the produce of Moldavia, preserved at Galatz.

The process is by forming a vacuum in the canister by means of steam, and preserving the meat, &c. in that vacuum.

[It is a well-known fact that, in the absence of atmospheric oxygen, putrefaction is suspended, often entirely so. Such is the principle upon which the patent here adverted to depends. The vacuum must be very complete to render the preservation of food successful.—R.E.]

16 BROCCHERE, P.

Concentrated forms of food prepared from the blood of cattle.

[The blood which has served as the subject of the above experiments and preparations is that of the Mammalian class, in which, as in other "red-blooded" animals, it consists of a colourless fluid called "plasma" or "liquor sanguinis," and of minute particles—most of them red, called "blood-discs," the rest white, called "lymph-corpuscles." When blood is drawn from the body and left at rest it "coagulates," that act consisting in the solidification of one of the constituents of the plasma, called the "fibrine," with which the blood-discs

are entangled, forming the red "clot;" another constituent of the plasma, called the "serum," remains fluid. A great proportion of the plasma consists of water. Blood also contains various fatty matters and phosphorus, and the following inorganic salts, in their proportions in 1000 parts:—

Chloride of sodium	3.6	
Chloride of potassium	0.36	
Tribasic phosphate of soda	0.2	
Carbonate of soda	0.84	
Sulphate of soda	0.28	
Phosphates of lime and magnesia	0.25	
Oxide and phosphate of iron	0.5	R. O.]

20 LEONARD, J. & T. P., *Hull*—Proprietors.

Beef, prepared, cured, and rolled, so as to keep good for any length of time. The process of curing and mode of preparing were invented by John Tupling, in the exhibitors' employ.

21 WARRINER, G., & SOYER, A.

Amazon, or essence of meat.

22 PAYNE & SON, 328 *Regent Street*—Importers and Manufacturers.

Specimens of curry powder, curry paste, mulligatawny paste, Delhi chutnee, and curry sauce. Pickled mangoes (*Mangifera*), Limes (*Citrus acida*), bamboo (*Bambusa*), and green and red bird's-eye chili, from the East Indies. Bengal Club chutnee and curry and mulligatawny pastes, manufactured in Calcutta. Pistachia nut and kernel (*Pistacia*), used in confectionery, East Indies. Cashew nut (*Anacardium*), West Indies. Betel nut, the fruit of the *Areca catechu*, East Indies. Soy bean (*Soja hispida*), from which soy is made. Wild liquorice seed (*Glycyrrhiza*). Turmeric root and prepared turmeric (*Curcuma*), East Indies. Dahl, a species of lentil, much used in India. Paddy, rice in the husk. Gram (*Cicer arietinum*). Preserved ginger, from the East and West Indies; candied ginger, China; green ginger, West Indies. Cum-quot, or China orange, preserved in China. Guava jelly, Jamaica. Litchis, East Indies.

23 UNDERWOOD, G. H., *Pendleton, Manchester*—Inventor and Proprietor.

Preserved meat. This article is preserved without the use of salt, and it may be kept an indefinite length of time without deteriorating its quality; when cooked, it retains its nutritious qualities, and eats almost as fresh as recently-killed meat.

24 LINKLATER, J.

Preserved meats.

26 WHITNEY, JAMES, *Calver Hill, Hereford*—Inventor.

Beef preserved in a dry state, peculiarly adapted for the use of sailors, being free from salt.

28 SNOWDEN, ROBERT, *City Road and East Road*—Inventor and Patentee.

Samples of raw and roasted coffee, with specimens of the results of the patent processes used in cleansing and purifying the coffee-berry from all fibrous matter, previous to roasting and grinding it.

29 LEBAIGUE, HONORE, 10 *Little Titchfield Street*—Importer and Manufacturer.

Trinidad cocoa pod; cocoa from Grenada, St. Lucia, red Trinidad, grey Trinidad, Guyaquil, Maragnan, Caracas; Jamaica sugar, lump sugar, powdered sugar, arrow-root, tapioca; Iceland moss; Persian salep; cinnamon from Ceylon; cassia from China; vanilla from Mexico.

Chocolate and cocoa, showing the various stages of manufactures; roasted cocoa, cocoa nibs, cocoa milled,

[3.]

butter of cocoa, cocoa mixed with sugar, chocolate, cocoa powder, chocolate powder.

Chocolate of different kinds and shapes, and coffee.

Samples of chocolate for invalids. Imitations of Lisbon, Italian, and Spanish chocolate, in cake. Fancy chocolate in drops, silvered, marbled, &c. Vanilla, coffee, cinnamon, pistachios, liqueurs, pralines, cream, cigars, &c.

Cake of chocolate, three hundred pounds weight.

30 PARIS CHOCOLATE COMPANY.

Chocolate, &c.

31 FRY, JOSEPH STORRS & SON, *Bristol*.

Specimens of the leaves, flowers, branches, and other parts of the cocoa-tree (from Trinidad) *Theobroma Cacao* (*Theobroma* signifies "Food of the Gods").

Trunk of the cocoa tree.

Cocoa, or cacao nuts.

Specimens of the ripe fruit from Trinidad and Grenada, with some cut open, showing the nuts within the pods.

Cocoa nuts—dark red, grey, pale red, and Spanish cured, imported from Trinidad.

Cocoa nuts—dark, ripe, and bright; imported from Granada.

Cocoa nuts—imported from Guayaquil and Para.

Other varieties from South America.

Vanilla pods from South America, used for giving a flavour to chocolate.

Roasted cocoa nuts from Trinidad and Grenada.

Husks of the nuts, called in commerce "cocoa shell."

The kernel of the nuts, called in commerce "cocoa nibs."

Pure chocolate and cocoa, ground and fit for use.

Specimens of some of the chief varieties of chocolate and cocoas. Paste chocolate. Croma and chocolate powder. Granulated, soluble, and flaked cocoa.

View of Port of Spain, in Trinidad, the principal shipping port of cocoa.

View of Naparima in Trinidad, the chief locality for the growth of cocoa.

Illustrations of the cocoa tree.

Drawing, showing the processes of the manufacture of chocolate and cocoa.

View of a "drying house" and "cocoa walk" at Arima, in Trinidad, which was constructed solely with the timber of one single tree of the cedar kind.

[*Theobroma cacao* is the tree which yields the cocoa of commerce. It belongs to the natural order *Byttneriaceae*. Large forests of this tree, which does not attain a great size, exist in Trinidad, from which island, in 1841, upwards of two million pounds were imported into Great Britain. The total imports in the same year were upwards of three million pounds.—R. E.]

32 WHITE, GEORGE BAILEY, 147 *Shoreditch*—Importer and Manufacturer.

Different specimens of the West India cocoa, raw, roasted, and manufactured. Chocolate in its various stages of manufacture, with samples of the different kinds.

33 SHINTON, RICHARD, *Spenc's Street, St. George's Road*.
Samples of cocoa.

34 MONTEIRO, LUIS ANTONIO, 13 *Claremont Terrace, Pentonville*.

Samples of sweetened chocolate, made of Caraccas cocoa, without any adulteration or farinaceous admixture; of Caraccas and British West India cocoas; and of British West India Islands' cocoa. Chocolate lozenges and confection of Caraccas cocoa, with other ingredients.

35 LANE, WILLIAM RAYNER, 226 *Strand*—Inventor and Manufacturer.

Essence of coffee.

Q

36 GRUT, BENJAMIN, 1 *Sambrook Court*—Importer.

Cocoa (*Theobroma cacao*), a variety known in commerce as *Caracas cocoa*; little known in England, and consumed chiefly by the Spaniards of Spain and South America. It is produced on a plantation in the interior of New Granada.

37 BUDD, JOSHUA THOMAS, 82 *Mount Street, Grosvenor Square*—Manufacturer.

Extract of cocoa.

38 BENHAM, W. A., *Cross Street, Queen's Square, Bloomsbury*.

Samples of Trinidad cocoa in its separate stages; the cocoa-nut (cacao), in its raw state, as imported from Trinidad; the nut as roasted; nibbed and divested of its outer bark or shell; and finally, its manufactured state.

[The consumption of cocoa, as an article of food, has greatly increased within the last few years. The West Indian kinds generally contain a larger proportion of the peculiar fatty matter (oil or butter of cocoa) than that which comes from New Grenada, and consequently are not so much valued. It forms a very digestible nutritious aliment, containing a peculiar azotized compound, *Theobromine*, analogous to that contained in tea and coffee.—J. W.]

39 BENSON, W., 133 *Oxford Street*—Importer.

Flor de Cabanas, Martinez, Havana cigars, and samples of tobacco.

40 LAMBERT & BUTLER, 141 and 142 *Drury Lane*.

Tobacco imported from America, Havana, Holland, &c.; and specimens of the articles manufactured from it.

[The total quantities of tobacco retained for home consumption, in 1842, amounted to nearly seventeen million pounds. Professor Schleiden gives a singular illustration of the quantity of tobacco consumed. North America alone produces annually upwards of two hundred million pounds of tobacco. The combustion of this mass of vegetable material would yield about 340 million pounds of carbonic acid gas, so that the yearly produce of carbonic acid gas from tobacco-smoking alone cannot be estimated at less than 1,000 million pounds—a large contribution to the annual demand for this gas, made upon the atmosphere by the vegetation of the world.—R. E.]

41 BREMNER & TILL, 60 *Fenchurch Street*—Brokers.

Samples of tobacco.

42 JONAS & BROTHERS, 42 and 43 *Leman Street, Whitechapel*—Manufacturers.

Specimens of cigars of home manufacture; and of tobacco, imported from the Havana; with samples of the raw material.

43 JONES, BEN., & Co., 39 *Brunswick Square*—Importers.

Chest of foreign cigars, and various smaller boxes of British manufactured cigars.

44 LUNDY FOOT & Co., *Dublin*—Inventors and Manufacturers.

Snuff: Lundy Foot's high toast, Scotch, and stalk snuff, made solely from the leaf and stalk of Virginia tobacco. Cavendish, negrohead, and other forms of tobacco, manufactured in imitation of the foreign or American.

45 TAYLOR, THOMAS GEORGE, *Grove Street, Hackney*—Grower and Manufacturer.

Tobacco of English growth and manufacture. Leaves of the plant prepared by exposure in a confined, dry,

light, and warm place. Samples of manufactured tobacco dressed with treacle and oil. Cigars, free from dressing. Snuff, resembling high-dried Welsh, pure. The stem of the leaf roasted and ground.

[The botanical name of the tobacco plant is *Nicotiana tabacum*. Its cultivation in England is said by Mr. Loudon to be restricted to the extent of half a pole, and that only for botanical or medicinal purposes.—R. E.]

46 HYAMS, M., 79 *Long Lane*—Manufacturer.

Cigars and pipes of British manufacture. Samples of tobacco.

47 SALES, POLLARD, & Co., 57 *Red Cross Street, Cripplegate*—Manufacturers.

Cigars manufactured from Yara tobacco. It is shipped from the port of Manzanilla.

48 BUCKLAND & TOPLISS, *Barrington Crescent, Brighton*—Inventors and Manufacturers.

Specimens of "the cigarilla," for the use of smokers. Other aromatic and medicinal cigars.

49 COHEN & ORR, 41 *St. James's Street*—Importers.

Raw tobacco, and tobacco made into cigars by hand-labour at Havana.

50 GOODES, GEORGE & SAMUEL, 12 *Prince's Street, Spitalfields*—Manufacturers.

Samples of British manufactured cigars; also, an arranged series, showing the process of manufacture.

52 RICHARDSON BROTHERS, *Edinburgh*—Manufacturers.

Tobacco, imported from Virginia into Leith. Specimens of the raw material, as imported with the stalk on it, known as "leaf," or "unstemmed," tobacco; of the stalk extracted; and of "strip," or "stemmed," tobacco, which, after being damped with water, is manufactured into "twist," and made up into rolls; a cord is then wrapped round each 150, and put into a press for about a month, under a pressure of nearly five tons. The article, then, is "roll" tobacco.

Leaf tobacco and stalk.

Snuffs: black rappee, Scotch, and brown rappee.

53 THE LONDON SPICE TRADE—Importers.

Samples of spices and the places of shipment:—

No. 1. Mace, from Penang.

No. 2—4. Nutmegs; brown, from Penang; luted, from Batavia; and wild, from Singapore.

Nos. 5—7. Cloves, from Penang, Amboyna (Dutch produce), and Zanzibar.

Nos. 8, 9. Cinnamon, from Ceylon.

Nos. 10, 11. Cassia, from Canton.

No. 12. Pimento, from Jamaica.

Nos. 13—17. Black pepper, from Bombay, Tellicherry, Singapore, and Batavia.

Nos. 18—21. White pepper, from Tellicherry, Penang, Singapore, and Batavia.

Nos. 22—27. Ginger, from Jamaica, Cochin China, Calcutta, Sierra Leone, and Bombay.

Nos. 28—30. Caraway seeds, from Holland and Mogadore, and English.

Nos. 31, 32. Coriander seeds, from Madras, and English.

54 FAULKNER, RICHARD & CHARLES, 44 *Jermyn Street, St. James'*—Manufacturers.

Specimens of English tart fruits, preserved in bottles, without sugar.

55 FORTNUM, MASON, & Co., 182 *Piccadilly*—Importers.

Preserved and dried fruits, and edible seeds, from various countries.

56 CLEMENS, JOHN, 25 *Mincing Lane, and Malaga*
—Producer.
Jordan almonds. Raisins.

59 RICHARDSON, TIMOTHY, & SONS, 6 *Duke Street,*
Southwark—Proprietors.

1. Golding hops, grown in the district called "The Hill," in Mid-Kent, used for the finest ales.

2. Golding hops, grown in East Kent, used for the same purpose as No. 1.

3. Golden hops, grown in the heart of Mid-Kent, and used for the best brown beers.

4. Jones's hops, grown in various parts both of Kent and Sussex.

5. Grape hops, also grown generally through the hop plantations.

6. Colegate hops, a hardy plant, but of inferior flavour; the cultivation of it has much increased of late years.

7—9. Hops grown in Essex, Suffolk, and Worcester.

[These hops are samples of the varieties in most estimation for the purposes of the brewer. The Goldings take their name from that of the grower who first introduced them; they are considered to be the finest, richest, and most valuable in the market, varying, however, according to the soil in which they are grown, and the treatment they receive. Jones's are of a shorter growth than the others, and are thus useful by enabling the grower to make use of the poles which would be too short for the Goldings or other varieties. Colegates are hardy, but backward at harvest, running much to vine, and capable of growing in comparatively poor soils. These qualities are, however, of advantage, as the inferior soils may thus be beneficially occupied by them, and their harvest takes place after the finer sorts are all in. The grape hop takes its name from its habit of growing in clusters like the grape. It is hardy, not so particular as to soil as the Goldings, and is generally very productive in yield.—J. W.]

60 ASHBURNHAM, JULIANA, *The Dowager Lady,*
Broomham, near Hastings—Producer.

A bag of hops, grown within three miles of the sea, in the parish of Guestling, Sussex.

61 ATTFIELD, CHARLES, *Farnham*—Producer.
Packet of Farnham hops.

63 GOLDING, ROBERT, *Hunton, Maidstone*—
Manufacturer.
Pocket of Mid-Kent hops.

64 PLOMLEY, FRANCIS, *Maidstone*—Designer.

Drawing of a magnified view of the formation and growth of the hop fungus, from its earliest to its latest stage.

65 MASTERS, A., *Tonbridge*—Proprietor.
Four branches of dried hops. Samples of the same.

66 PETERSON, THOMAS, *Trinity Chambers, Water Lane,*
Tower Street—Agent.
Specimens of oilseed cakes.

68 BURN, ROBERT, *North Merchiston House, Edinburgh*
—Importer, Designer, and Manufacturer.
Cotton seed, with oil, and oil-cake imported from the colonies.

70 SHEPPARD, ALFRED, *Ipswich*—Proprietor.
"Eggshell white" wheat, and "Chevalier" malting barley, grown in Suffolk. Malt manufactured at Ipswich.

71 THE TRURO LOCAL COMMITTEE—Producers.
Specimens of Cornish agricultural grains:—Black barley, skinless barley, grown and supplied by J. D. Gilbert,

Esq., of Trelissick, near Truro. Indian corn, grown and supplied by Colonel Scoble, of Nansalvern, near Penzance.

Cornish red wheat, grown on the granite soils, especially adapted to the exposed situations in the neighbourhood of Penzance, and Cornish white wheat: the best sort to be grown on the high and exposed land of Cornwall; supplied by Mr. John Michell, of Feock, near Truro. Cornish barley, grown and supplied by the same, adapted for malting and grinding purposes. Agricultural produce, grown and supplied by the Rev. R. M. N. Eusticke, of Penwarne, in Mawnan, adapted for feeding cattle and poultry; grown on the poor and exposed peat soils of Cornwall.

72 WEBB, RICHARD, *Calcot Farm, Reading*—
Producer.

Mummy Talavera wheat. Three grains of this wheat are said to have been found in the hand of an Egyptian mummy, and sent to Mr. Dobree, President of the Agricultural Society in Guernsey, who planted the same in his garden, and forwarded the produce to Col. Blagrove the following year. This produce he has successfully grown as a spring crop, and from it the present sample, grown by the exhibitor, is a specimen, the quality and crop being alike good.

[Much doubt has been raised as to the origin of the mummy wheats. The Egyptian wheat (*Triticum compositum*) is very different from the variety of common wheat (*Tr. vulgare*), called "Talavera." The Egyptian wheat has a head composed of three spikes, one erect in the centre, similar to the common wheat, and on either side another, not quite so large, attached to the base of the centre, and standing out at a small angle from it. Our climate is not suited to its growth, as, in the course of one or two years, the side spikes entirely disappear, and a coarse, thick-skinned grain is produced.—J. W.]

Specimen of the Wellington apple.

73 RAYNBIRD, ROBERT, *Hengrave, near Bury St.*
Edmunds—Producer.

Sack of Kessingland wheat, grown upon a light soil, at Hengrave, Suffolk; this is a productive and new variety of wheat.

Sack of Chevalier barley, grown at Hengrave.
Sack of tick beans with white eyes, grown at Hengrave; a variety, called "Manchester white eyes."

74 RAYNBIRD, HUGH, *Laverstoke, Andover Road,*
Hampshire—Producer.

Specimens of wheat produced by hybridization.
Specimens of Hopetoun and Piper's thickset wheat—the variety from which the hybrids were obtained, by fertilizing its pistils with pollen from the stamens of the Hopetoun wheat. To effect this, the stamens of the flower of the thickset variety were removed before they had reached maturity, by opening each of the glumes and carefully picking out the stamens upon the point of a needle: the pistils of the flower being left perfect, were a few days afterwards fertilized by dusting them with the pollen from stamens brought from the Hopetoun variety of wheat; this produced a great number of varieties, partaking more or less of the parent stocks, and from these the four specimens exhibited were selected.

[In the hybridization of plants experiments are always of much interest, and often productive of very important results, as the good qualities of two varieties may be obtained, or their bad qualities be counteracted. Hybrids obtained by the judicious intermixture of species, frequently produce seeds capable of giving origin to plants combining the characters of the two different parents; but hybrids produced by species closely allied but really distinct gradually lapse into the one or the other of the originals, and thus become extinct.—J. W.]

- 75 KENDALL, JOHN, *Trevelin, Truro, Cornwall.*
Sheaf of white wheat, named "The giant straw wheat;" grown by the exhibitor in quantities of from 10 to 15 acres for the last 10 years. This wheat is stated to have produced, on an average, 60 bushels per acre. Its superiority consists in the length, size, and stiffness of the straw, and in its abundant produce.
- 76 CODD, RICHARD, *Wexford, Ireland—*
Manufacturer.
Barley, grown in the county of Wexford. Malt, made from the same.
- 77 TAYLOR, JOHN, & SON, *Bishop Stortford, Herts—*
Manufacturers.
Varieties of malt, viz.:—
Amber, used in brewing ordinary ales and porter.
Coloured, used for same purpose.
White, used in brewing pale ales.
Brown, used in brewing porter to give it flavour and colour.
[The various colours described are given to the malt by the different temperatures to which it is submitted after the germination is stopped. The essential oil contained in the barley is acted upon by heat, and different flavours are also produced. In the brown malt the saccharine matter is partially carbonized, and a peculiar empyreumatic flavour obtained.—J. W.]
- 78 WELLSMAN, JOHN, *Moulton, near Newmarket—*
Manufacturer.
Sample of pale malt, manufactured from Chevalier barley.
- 79 MAUND, BENJAMIN, F.L.S., *Bromsgrove—*
Producer.
Specimens of wheat, artificially hybridized, showing that its exterior form, and probably its chemical properties, can be modified, and its productiveness improved.
- 82 PAYNE, H.
Varieties of grain.
- 83 STRANGE, WILLIAM, *Banbury.*
Stiff clay soil, without phosphate of lime or magnesia, and in cultivation, with 22 per cent. of phosphate of lime and magnesia. Sample of beans, growth of 1850, as per statement annexed.
- 84 WRIGHT, I., *Great Bentley, near Colchester.*
British grasses.
- 85 MILNE, WM., *Rhynie, Scotland—*Producer.
One bushel of Scotch birley oats.
- 86 WALKER, WILLIAM, *Mossat, near Aberdeen—*
Producer.
Sample of Kildrummie oats.
- 88 COUSENS, S., *Great Bentley, near Colchester—*
Producer.
White wheat, new variety; weight of imperial bushel, 64 lbs. net.
- 90 FOX, JOHN JAMES, *Devizes—*Proprietor.
Specimens of red straw-white Essex wheat, and of Nursery, Lammas, and Talavera red wheat, grown in Wiltshire.
- 90A CAHILL, M., *Ballyraggitt, Kilkenny—*Producer.
Samples of wheat, oats, and barley, grown at Grove, Kilkenny.
- 91 STEVENS, RICHARD, *Stamford—*Producer.
Sample of wheat, Collyweston white.
- 92 CROUGHTON, WILLIAM PEEL, *Tenterden, Kent—*
Producer.
Hoary white wheat; produce stated to be over five quarters per acre.
Golden pod beans; produce, from which the sample is taken, stated at four quarters and six bushels per acre.
- 93 ASPREY, JAMES, *Sandleford, near Newbury, Berks—*
Producer.
White trump wheat, grown on a very poor soil; weight, 67 lbs. per bushel.
- 94 FORDHAM, THOMAS, *Snelsmore Hill East, near Newbury—*Producer.
Samples of improved white wheat; weight stated to be 66 lbs. per bushel.
Prolific beans; weight stated to be 70 lbs. per bushel.
- 95 JUSON, W., *Red Hill, Shrewsbury.*
Samples of grain.
- 98 KEENE, WILLIAM, *24 Cornhill—*Proprietor.
Case containing geological specimens from the Western Pyrenees.
[The Western Pyrenees consist chiefly of cretaceous deposits, with a central range of crystalline and metamorphic rocks. The Bunter sandstein occurs at intervals, and towards Argelles the oolitic series is represented. The triassic rocks occupy the southern or Spanish, and the oolitic and cretaceous the northern or French side of the central ridge—D. T. A.]
Specimens of the "forty-day maize" grown in England, from new sorts cultivated by the exhibitor in the Pyrenees.
- 99 IRWIN, ELIZABETH, *Ballymore, Boyle, Roscommon—*
Producer.
Black barley, grown at Ballymore, in the county of Roscommon, Ireland, from African seed.
[Black barley is a variety of the common two-rowed barley (*Hordeum distichum*). In the course of cultivation the dark colour gradually disappears. It is a heavy cropper, and requires care at harvest, as, when the grain is ripe, the straw below the ear becomes very brittle and apt to break off.—J. W.]
- 100 BEXLEY, Lord, *Footscray, Kent—*Producer.
Bushel of white chittim wheat.
- 101 MOSES, H. E. & M., *87 Tower Hill.*
Fine sample of Australian wheat, weighing 64 lbs. per bushel; the produce of Adelaide, South Australia.
Preserved fresh meats, prepared at the Camperdown establishments, Sydney, New South Wales. They are upwards of three years old, have undergone a voyage of 16,000 miles, are in a perfectly fresh state, and will keep so for any number of years.
- 102 GIBSON, CHARLES, *Pitlochry, Perth—*
Producer.
Four bushels of English barley, grown by the exhibitor near Pitlochry, about 600 feet above the level of sea.
Hand-spun and hand-woven shepherd check plaid, composed of natural black and white wool from black-faced Highland sheep.
Hand-spun and hand-woven shepherd check plaid, composed of blue dyed and white wool from black-faced Highland sheep.
- 103 GULLEREZ, ACHILLE FRANÇOIS, *37 Castle Street, Edinburgh—*Producer.
The lentil, or *Ervum lens* of botanists—known and extensively cultivated in the earliest ages, especially in the East, being probably similar to the "red pottage" of Esau.

The exhibitor has cultivated lentils at South Queensferry, near Edinburgh, for two years; he has successfully grown and ripened in soil manured by sea-weed, the small lentil and the large red (the common, or Egyptian).

[In Egypt, Syria, and Hindustan, lentils form at the present day a chief article of food among the labouring classes. They are also a common ingredient in French cookery.—J. L.]

103A SADLER, WILLIAM JAMES, *Swindon, Wilts.*

"Lawrance's prolixus," crystal white. This wheat has qualities which are considered to render it highly deserving of cultivation. The root is adapted to draw nourishment from an unusual depth in the soil, produces a strong straw, effectually resists the storm, affords a prolific yield; and its colour and weight are good. Yield of sample shown, stated at 66½ lbs. per bushel.

104 GIBBS, THOMAS, & Co., *Half-Moon St., Piccadilly*
—Importers and Producers.

Collection of dried specimens of grasses used in laying down land for permanent pasture, with seeds of the same. Specimens of wheat, barley, &c.; collection of various agricultural, kitchen garden, and other seeds.

105 LAWSON, PETER, & SONS, *Edinburgh*—
Producers.

Specimens of the vegetable productions of Scotland, comprehending all substances used for food in the chemical arts and medicine, in manufactures, and in house and ship building.

This collection is divided into six sections, as follows:—

1. Plants cultivated for their farinaceous seeds, together with their straw or haulm.
2. Plants cultivated for their herbage and forage.
3. Plants cultivated chiefly for their roots.
4. Plants cultivated for their uses in the arts, manufactures, and for various economical purposes.
5. Plants cultivated for their medicinal properties
6. Plants cultivated for their timber.

A detailed account of each specimen is contained in a catalogue printed by the exhibitors.

106 JONES, G., *Redland, Bristol.*

Specimen of wheat, grown by spade culture and dibbling.

107 WRIGHT, HENRY, *Antingham, near North Walsham*—Manufacturer.

Malt, manufactured from barley grown by the Rev. Cremer Cremer, of Beeston, near Cromer, Norfolk.

108 GENTILE, JOSEPH PASCAL, *Harbertonford Works, near Totness, Devon*—Manufacturer.

Macaroni and Italian pastes.

Prepared flour.

[The hard wheats are best adapted for the manufacture of these substances. They contain more gluten than the soft wheats.]

Prepared flour and cocoa as a chocolate.

Vegeto-animal food; a compound of the nutritious principles of meat and wheat.

110 WATT, GEORGE, *Upper Balfour, Banchoy, Scotland.*

Sample of barley, grown after turnips, in a five-course rotation, turnips, barley, hay, pasture, oats, with the ordinary farm-yard manure. Exhibited for quality.

111 M'ARTHUR, JOHN, *51 Grafton Street, Dublin*—
Producer.

The roots of agricultural plants, partly dried for preservation, and partly in a growing state, in glass cases.

112 SUTTON, JOHN, & SONS, *Reading.*

Specimens of grain. Skinless Chevalier barley, a new variety. Purple-topped yellow hybrid turnip, valuable for late sowing, as a substitute for swedes. Lincolnshire red turnip, from the stock of Philip Pusey, Esq., M.P.

114 M'KILLICAN, JAMES, *Piperhill, Cawdor, Scotland*
—Producer.

Sample of perennial rye-grass seeds (*Lolium perenne*), raised on the farm of Piperhill, Nairnshire. They are the produce of the third year's crop; weight 37 lb. 3 oz. per bushel.

Sample of white wheat, the produce of the first crop, from land formerly worthless, on the same farm, manured by 300 lbs. weight of Peruvian guano to the acre. Produce per imperial acre about five quarters; weight per bushel, 65 lbs. 1 oz.

114A M'GARRY & SONS, *Palmerstown and Ashtown Mills, Dublin*—Manufacturers.

Linseed and rape oils and cakes, and Irish mustard.

115 ILLINGWORTH, ALEXANDER, *Banchory Ternan, Scotland*—Producer.

English barley, weighing 59½ lbs. per bushel. Scotch barley oats, weighing 44 lbs. per bushel. Perennial rye-grass seeds, weighing 30½ lbs. per bushel.

116 BATTY & FEAST, *15 and 16 Pavement, Finsbury Square*—Inventors and Manufacturers.

Vegetable productions preserved in distilled vinegar. A pine apple, with roots and leaves. An orange-tree, branches, and fruit, and branches of citron and fruit. Cucumbers, grown in England. A variety of preserved fruits and other comestibles.

117 COLMAN, J. & J., *9 College Hill*—Manufacturers.

Specimens of starch, from wheat and rice, mustard, British gum, indigo blue, &c.

["British Gum" consists in reality of torrefied starch. The granules of starch, in its ordinary form, are enveloped in a thin pellicle, insoluble in cold water. By roasting the starch, the membranous envelopes are burst open, and their granular contents are then readily soluble in cold water. It is used, among other purposes, for thickening the colours of calico printers.—R. E.]

118 NOAK, W. & JOHN, *Droitwich*—Manufacturers.

Sample bottle of brine, obtained from springs at a depth of 173 feet, at Droitwich; and specimens of salt manufactured from the same.

119 DEWAR, THOMAS, *Newcastle-upon-Tyne*—
Manufacturer.

Specimens of brown and white mustard seed, from which mustard for table use is made.

[The mustard of commerce belongs to the family of cruciferous plants. Its introduction as an article of extensive employment at the table, only dates from the beginning of the last century. It is principally cultivated in the North Riding of Yorkshire.—R. E.]

120 LEVY, WALTER, *2 White Row, Spitalfields*—
Manufacturer.

Specimen of Taganrog wheat; the same, granulated, with the flour and bran extracted.

Samples of macaroni celery and vermicelli.

121 TUCKER, RICHARD GRANT, *Lenton, near Nottingham*
—Manufacturer.

Starch, used by the lace-dressers in Nottingham.

Gum substitute, used by cotton, silk, woollen, and wall-paper printers, for giving consistence to colours.

Adhesive, or label gum, suitable for postage stamps.

The residue, or glutinous matter, remaining after starch is extracted from wheat.

[A large number of plants and vegetable substances contain starch. It is found in seeds, roots, tubers, and stems. It is often obtained from wheat which has become accidentally damaged. From its insolubility in cold water, it is easily washed out of any vegetable tissue which may contain it, and thus it may be partially separated from other substances present in the matter operated upon. But there are some from which it cannot be thus separated, and here, by an ingenious method, chemical decomposition is employed to get rid of them. The liquor in which some of the starchy particles are contained is allowed to ferment. By this means the gluten, albumen, &c., become, in a great measure, dissolved, and the starchy particles are left unaltered, and separate themselves by precipitation. The largest source of starch of late years has been the potato, from which it is obtained simply by rasping and washing.—R. E.]

- 122 TUCKER, EDWARD, *Belfast, Ireland.*
Glue and starch, produced at Belfast.

[The manufacture of the common and useful substance, glue, forms an interesting branch of the industrial arts. It is procured from the parings of hides, parchment, and refuse leather of all kinds. Such matters, after a preparatory cleaning in alkaline water, are boiled in large vessels for some time. The liquid is then run off and is found to be charged with an impure solution of gelatine; on cooling, the sheets of glue are left in frames to dry. This part of the process is often singularly affected by atmospheric vicissitudes. The state of the air during thunder-storms produces a remarkable effect on the glue, and often spoils the manufactured product. The substance commercially called "gelatine" is a very pure description of glue obtained, like it, from animal substances carefully selected and purified, so as to be fitted for human consumption. It has been largely used of late as a substitute for isinglass.—R. E.]

- 123 BROWN & POLSON, *Thrusheraig, near Paisley*—Manufacturers.

Patent powder starch, manufactured from sago flour.
Patent soluble starch, granulated, manufactured from potato flour.
Patent wheat starch, manufactured from wheat.
Arrow-root, manufactured by the exhibitors.

- 124 WOTHERSPOON, ROBERT, *Glenfield Starch Works, Maxwellton, near Paisley*—Manufacturer.

Specimen of Glenfield patent powder starch, manufactured from sago; a new material, from which the starch is made.

- 125 RECKITT, ISAAC, & SON, *Hull*—Manufacturers.

Patent imperial wheaten starch, white and blue.
Patent soluble starch, blue and white, made from potato flour.
Patent sago starch.
Potato flour, used as a raw material in the manufacture of starch, and for stiffening Manchester calicos, muslins, &c.
Wheaten starch powder, used in perfumery and confectionery.

- 126 SHAND & MUCKART, *Montrose.*
Samples of starch.

- 127 MILLER, DAVID & WILLIAM, *Musselburgh, near Edinburgh*—Producers.

Starch; household white, bleachers' wheaten, Royal blue, and sago flour. Scotch farina, Nos. 1 and 2. Arrowroot.

- 128 JONES, ORLANDO, & Co., *Battersea*—Inventors, Patentees, and Manufacturers.

Specimens of starch manufactured from rice, and of rough starch, hair powder, and gluten, obtained in the process of manufacture.

The process is the result of the discovery that a weak caustic alkaline solution has the property of separating starch from the gluten and fibrin with which it is combined in farinaceous substances. This process has enabled the patentee to substitute rice for wheat in the manufacture of starch, thus preserving wheat for the more important purposes of human food. This starch requires no boiling; and, being less hygrometric than wheat starch, retains a more permanent stiffness and glaze. The rough starch obtained in the process is valuable for feeding purposes, and for stiffening coarse fabrics.

- 129 PIESSE, SEPTIMUS, 43 *Molyneux St., Bryanstone Square.*

Lactine or artificial milk.

Samples of everlasting chlorine, a chemical mixture for eliminating chlorine gas slowly for disinfecting purposes. Patchouly plant (*Pogostemon patchouly*), China and India; used in China as a perfume. Essence of patchouly. Pistachio nuts (*Pistacia vera*, Linn.), from the shores of the Mediterranean and Spain; pistachio kernels; pistachio powder, used as a toilet powder.

- 130 BERGER, SAMUEL, & Co., *Bromley, Middlesex*—Manufacturers.

Specimen of rice starch, blue and white, made under the exhibitors' patent; also, samples of Madras and Bengal rice, from which this article is usually made.

- 131 HALL, THOMAS, *Lenton, near Nottingham*—Manufacturer.

Patent starch.

- 133 McCULLUM, MALCOLM, 12 *Cannon Street, Leith*—Discoverer.

Specimens of the rhizome, or creeping stem, of *Typha latifolia*, or "large red mace." The Gaelic name is "morthan;" the central part is edible in its raw state; when dried and separated from the fibres, it affords a meal, or flour, of a sweet and agreeable taste, which can be made into bread or starch.

Sample of the meal. The fibres of the stem are a substitute for lint. This plant grows in abundance in lakes and marshy places, and is very prolific.

- 134 EDWARDS, HENRY, 32 *Great Windmill Street, Haymarket*—Inventor and Manufacturer.

A mass of "custard powder," capable of producing 896 quarts. Composed of flour and other ingredients.

- 138 ST. ETIENNE, Madame DANIELE, *Harberton Ford, Totness.*—Agents, TOOTAL and BROWN, 73 *Piccadilly.*

Specimens of wheat-gluten, mixed with wheat flour, or potato-flour. Used chiefly as food, especially for invalids, in the form of soups, puddings, biscuits, &c.

Specimens of vegeto-animal compounds for long voyages, &c.; prepared with wheat-gluten, and beef, veal, mutton, gelatine, poultry, fish, &c.; the same with fruits. Used in the preparation of soups, puddings, pies, and other dishes.

Specimens of chocolate, biscuits, &c., improved in nutritive power by the addition of wheat-gluten.

Specimens of starch and potato-flour, artificial sago, tapioca, arrow-root, &c.

Specimens of gums. Potato-flour and starch gums, all soluble in cold water.

Inferior gum-arabic, cleaned and granulated, with improvement in the quality. All these gums used as substitutes for natural gum for printing, chemical, and general purposes.

SOUTH GALLERY.

139 MOORE, EDW. DUKE, *Ranton Abbey, Eccleshall, Stafford*—Patentee.

Essence of milk, requiring only the addition of water to produce perfectly fresh milk. Samples combined with chocolate, cocoa, and coffee.

[In specimens similar to that described, inconvenience is often occasioned by the crystallization of the sugar of the milk, which is but sparingly soluble.]

140 FADEUILHE, V. B., 19 *Newington Crescent*—Manufacturer and Inventor.

Consolidated milk for long sea voyages, and for medicinal and domestic use. After being dissolved in boiling water and reproduced in the form of milk, the solution will keep perfectly pure for four or five days; it may be boiled as often as required without "breaking;" and is miscible with all kinds of spirits.

[The preservation of the substance in question is due to the entire expulsion, by evaporation, of the watery constituents of milk. In the absence of a certain quantity of water putrefactive changes cannot proceed.—R. E.]

141 GLASS, GEORGE MICHAEL, *Brandon Street, Walworth*—Inventor and Manufacturer.

Gelatine for culinary and manufacturing purposes.

142 GARDNER, JOHN, 51 *Mortimer Street*—Discoverer.

Leaves of a tree, said to contain a nutritive crystalline principle, identical with that of Chinese tea (*Theine*), showing the leaves in their natural state, simply dried, also in various forms after having undergone the necessary preparations for use.

143 ASSAM COMPANY.

Samples of tea, the produce of Assam (*Thea Assamica*). Assam became a British possession in 1826, at the conclusion of the Burmese war. The tea-plant was found to be indigenous there, but this fact was not generally known until the year 1834. In 1839, the Assam Company was formed. It is incorporated, and its object is the cultivation and manufacture of tea. Owing to impediments of various descriptions, its early operations were checked, and have been confined to the cultivation of about 1,000 acres. Until recently the results of the cultivation and manufacture of tea in a commercial point of view have not been ascertained. They are now fully established.

The tea realizes in England high prices, and is considered to be of fine qualities. It is entirely manufactured by natives of India.

144 SAUNDERS & GATCHILL, *Dublin*—Agents.

Chicory in all its stages, from the kiln-dried root to the ground dust fit for use.

146 POOLE, SARAH REBECCA, *Kingston-on-Thames*.

Patent crystallized malt, used by porter brewers. Upon breaking a grain it will be seen that its substances has been converted into sugar; its properties consist in producing double the quantity of extract, and giving porter the desired flavour.

149 PERKINS, HENRY, *Hanworth Park, Surrey*.

A small loaf of sugar, made from sugar-canes grown by the exhibitor in the county of Surrey.

150 KIDD & PODGER, *Isleworth, Middlesex*—Manufacturers.

Specimens of extra superfine flour dressed through Swiss silk machines, and manufactured from English wheat and Australian wheat.

151 PAKEMAN, WILLIAM, *Bath Road, Hounslow*—Inventor and Manufacturer.

Sample of bread, manufactured from wheat, rice, and potatoes.

152 MARRIAGE, E.

Samples of flour.

153 M'CANN, JOHN, *Beamond Mill, Drogheda*—Manufacturer.

Coarse cut oatmeal, used for making stirabout, or porridge, in Ireland.

154 STONEHOUSE, ALEXANDER, *Dunning, Perth*.

Specimen of farina, used as food, and in manufactures.

157 STYLES, THOMAS, 148 *Upper Thames Street*—Manufacturer.

Ashby's prepared groats, barley, and pea-flour, for the production of pure gruel, barley-water, light puddings, and food for infants, pea-soup, &c.

159 CHITTY, EDWARD, *Guildford*—Manufacturer.

Flour.

160 FITCH, FRED. CHS., *Steeple Bumpstead, Essex*—Producer.

Sack of fine wheaten flour, manufactured from Essex wheat.

161 SMITH, J., *Hare Craig, Dundee*—Manufacturer. Agent in London, W. J. ROBERTSON, 48 *Devonshire Street, and 35 Walbrook, City*.

Samples of patent oat flour.

162 BUCK, P., & SON, *Danby Mills, near Middleham, Bradford*—Producers.

Double superfine flour; fine flour; wheat meal and oat meal. Exhibited for colour and quality.

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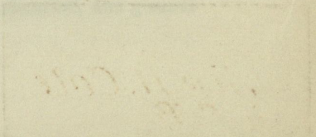
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